

REMARKS

The Examiner's communication mailed November 17, 2004 has been received and carefully considered. In conformance with the applicable statutory requirements, this paper constitutes a complete reply and/or a bona fide attempt to advance the application to final action. Specifically, claims 33 and 49 have been amended, claims 34-42, 44-45 and 47-48 have been cancelled and new claims 50-70 have been added. In addition, detailed arguments in support of patentability are presented. Reexamination and/or reconsideration of the application as amended are respectfully requested.

Summary of the Office Action

The specification and, specifically, the abstract were objected to for containing an unclear term.

Claims 34-42, 44-45 and 47-48 stand rejected under 35 U.S.C. § 112, second paragraph.

Claims 33, 43, 46 and 49 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Ernst et al. (U.S. Patent No.5,816,759).

Specification

The abstract has been carefully amended to overcome the Examiner's objection. Specifically, "tapered plug" has been changed to --expansion member-- in the abstract.

35 U.S.C. § 112

Claims 34-42, 44-45 and 47-48 have been cancelled and new dependent claims have been added to depend from independent claims 33, 43 and 46.

**The Claims Distinguish Patentably
Over the Reference(s) of Record**

Claim 33, as amended, calls for a bolt and anchor assembly comprising a bolt, a shell, and an expansion member. Claim 33 further calls for engagement between the support device and the shell that sequentially (1) forces the shell into an expansion member to expand the shell to anchor an elongated bolt in an associated bore hole while the support device remains axially fixed relative to the shell and (2) then after anchoring the elongated bolt in the associated bore hole allows axial movement of the support device in a direction toward and relative to the shell. Applicant respectfully

asserts that the reference(s) of record fail to disclose or fairly suggest such a bolt and anchor assembly.

In *Ernst et al.* (hereinafter, “*Ernst*”), for example, the upper sleeve 29 does not remain axially fixed relative to the expandable sleeve 30 while the lower fingers 35 of the expandable lower sleeve portion 34 of sleeve 29 are anchored in the hole 101. Rather, the lower sleeve portion 34 is only said to expand outwardly before the upper sleeve portion 32 is expanded. See *Ernst* at col. 4, lines 16-21 and lines 36-41; see also *Ernst* at col. 7, lines 9-11. In other words, the upper sleeve 29 moves axially prior to anchoring of the upper sleeve portion 34 in the hole 101, i.e., axial movement of the upper sleeve 29 does not occur after anchoring of the bolt 20 in the hole 101, but prior thereto. Thus, there is no teaching or fair suggestion in Ernst of engagement that forces a shell into an expansion member to anchor the shell while a support device remains axially fixed and then after anchoring allows axial movement of the support device.

Accordingly, for at least this reason, Applicant submits that claim 33 and claims 50-64 dependent therefrom distinguish patentably over the reference(s) of record.

Claim 43 calls for the shell support to maintain the axial position of the expansion shell while the shell is forced to engage a rock formation. *Ernst* does not disclose such a shell support. More specifically, *Ernst* does not teach or fairly suggest a support device that maintains the axial position of a shell while it is forced to engage a rock formation. Rather, *Ernst* discloses a sleeve 30 that is engaged by a nut 40 on one side and a sleeve 29 on the other side. See *Fig. 1 of Ernst*. The fingers 33,35 of the sleeve 30 are forced by the nut 40 and the sleeve 29 to expand outwardly. *Ernst* only discloses that the lower sleeve portion 34, including fingers 35, is expanded outwardly prior to the upper sleeve portion 32, including fingers 33, being expanded outwardly. There is no disclosure in Ernst of a shell support maintaining the axial position of a shell while the shell is being forced to engage a rock formation.

In addition, claim 43 calls for the shell support to move axially relative to the expansion shell when the elongated bolt is tensioned after engagement to the rock formation. Applicant respectfully asserts that, in *Ernst*, when the lower sleeve portion 34 and the upper sleeve portion 32 both anchor the anchor assembly 10 in the hole 101, no tensioning can occur because the anchor assembly is anchored in two locations. Further, once both portions 32 and 34 anchor in the hole 101, axial movement of the sleeve 29 is substantially prevented, directly contrasting the limitation

of claim 43 calling for the shell support to move axially relative to the shell after engagement to the rock formation.

Accordingly, for at least these reasons, Applicant submits that claim 43 and its dependent claims 65-66 and 70 are in condition for allowance.

Dependent **claim 70** calls for the shell support of claim 43 to be threadedly engaged with the elongated bolt of claim 43. Applicant respectfully asserts that the primary reference of record (Ernst) does not disclose or fairly suggest a shell support threadedly engaged with an elongated bolt. Rather, Ernst discloses a sleeve 29 slidably received over a threadless portion of bolt 20. Thus, sleeve 29 is not threadedly engaged with the bolt 20. Accordingly, Applicant asserts that claim 70 is patentably distinct over the references of record for this additional reason.

Claim 46 calls for the step of rotating a mine roof bolt to anchor an expansion shell assembly in a drilled hole with a support device axially fixed relative to an expansion shell. Claim 46 further calls for the subsequent step (i.e., occurring after the step of rotating the mine roof bolt to anchor the expansion shell assembly) of further rotating the mine roof bolt to tension said mine roof bolt with said support device axially moving in a direction toward said expansion shell. The Examiner rejects claim 46 as anticipated over Ernst, without specifically applying Ernst to the steps called for in claim 46. Applicant respectfully asserts that Ernst fails to disclose or fairly suggest the steps required by claim 46 and, therefore, requests the rejection over Ernst be withdrawn.

More specifically, Ernst fails to disclose the step of maintaining a support device in an axially fixed position relative to an expansion shell while anchoring an expansion shell assembly in a drilled hole. Rather, Ernst merely discloses expanding a lower sleeve portion 34 prior to expanding an upper sleeve portion 32. Rotation of bolt 20 does not anchor the lower sleeve portion 34 prior to axial movement of the sleeve 29 relative to the sleeve 30, but only expands the lower sleeve portion 34 prior to expansion of the upper sleeve portion 32. Thus, Ernst does not disclose or fairly suggest at least one of the steps called for in claim 46.

Additionally, the step in claim 46 calling for further rotation of the bolt, after the bolt is rotated to anchor the assembly in the drilled hole, to tension the mine roof bolt with the support device axially moving is missing from Ernst. Upon anchoring both the upper and lower fingers 33,35 in Ernst, no tensioning of the bolt 20 can occur and no axial movement of the alleged support device 29 can occur. Upon anchoring (i.e., full expansion of the lower fingers 33), the sleeve 29 is prevented from axially moving along

the bolt 20 to tension the bolt. Ernst appears to be primarily concerned with anchoring the assembly 10 in hole 101 without regard for tensioning the bolt. In contrast, claim 46 is directed to a method for anchoring and tensioning a mine roof bolt.

Accordingly, for at least these reasons, Applicant respectfully asserts that claim 46 and claims 67-69 dependent therefrom are patentably distinct over the reference(s) of record.

Claim 49, as amended, includes a limitation calling for mating engagement between a base ring of a shell and a support device to allow axial movement of the support device into and through the base ring of the shell for tensioning an associated bolt after fingers of the shell are expanded by the expansion member. Prior to the present amendment, the Examiner rejected claim 49 as being anticipated by Ernst. Specifically, the Examiner asserts that Ernst teaches a shell 30 having a base ring 32,33, an expansion member 40, and a support device (shell support) 29. The Examiner further asserts that, in Ernst, engagement between the support device 29 and the shell 30 sequentially forces the shell 30 into the expansion member 40 to expand the shell 30 to anchor a bolt 20,22 in a bore hole.

Applicant respectfully asserts that Ernst fails to disclose a shell having a base ring and further fails to disclose an assembly that allows axial movement of a support device into and through a base ring of a shell for tensioning a bolt after fingers of the shell are expanded. In contrast, Ernst discloses a sleeve 29 that engages a sleeve 30. In Ernst, the sleeve 29 forces fingers 33 of a lower sleeve portion 34 of the sleeve 30 outwardly, but does not axially move into and through the sleeve 30 (or axially move into and through sleeve fingers 33 and/or sleeve upper portion 32) after fingers of the sleeve 30 are expanded.

For at least these reasons, Applicant respectfully submits that claim 49 is patentably distinct over the reference(s) of record.

CONCLUSION

All formal and informal matters having been addressed, it is respectfully submitted that this application is in condition for allowance. It is believed that the claim changes clearly place the application in condition for allowance. Alternatively, if the Examiner is of the view that the amendments do not place the application in clear condition for allowance, it is requested that he telephone the undersigned for purposes

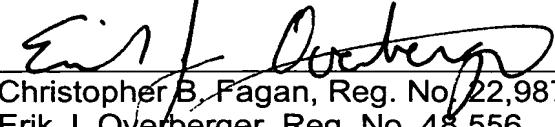
of conducting a telephone interview to resolve any outstanding differences. In any case, an early notice of allowance is earnestly solicited.

Respectfully submitted,

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Under 37 C.F.R. § 1.8, I certify that this Amendment is being

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May 17, 2005	Audrey M. Dragony